



Complete Summary

GUIDELINE TITLE

Antihypertensive therapy in diabetic nephropathy.

BIBLIOGRAPHIC SOURCE(S)

Nicholls K. Antihypertensive therapy in diabetic nephropathy. Nephrology 2006 Apr;11(S1):S73-8.

Nicholls K. Antihypertensive therapy in diabetic nephropathy. Westmead NSW (Australia): CARI - Caring for Australasians with Renal Impairment; 2005 Sep. 12 p. [21 references]

GUIDELINE STATUS

This is the current release of the guideline.

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SCOPE

DISEASE/CONDITION(S)

Hypertension in diabetic nephropathy

GUIDELINE CATEGORY

Assessment of Therapeutic Effectiveness
Management
Treatment

CLINICAL SPECIALTY

Endocrinology
Family Practice
Internal Medicine
Nephrology
Pharmacology

INTENDED USERS

Pharmacists
Physicians

GUIDELINE OBJECTIVE(S)

To review the large body of evidence demonstrating that blood pressure (BP) control slows progression and to discuss target BP goals

TARGET POPULATION

Patients with diabetic nephropathy

- Patients with type 1 and type 2 diabetes mellitus

INTERVENTIONS AND PRACTICES CONSIDERED

Anti-hypertensive therapy

MAJOR OUTCOMES CONSIDERED

- Goal blood pressure
- Cardiovascular events
- Renal function
 - Doubling of serum creatinine
 - Creatinine clearance
 - Glomerular filtration rate
 - Microalbuminuria
 - Proteinuria

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Databases searched: The Cochrane Renal Group Specialised Register was searched for randomized controlled trials (RCT's) relating to the prevention of progression of kidney disease in people with diabetes mellitus type 1 and type 2. Specific interventions included antihypertensive therapies, Angiotensin-converting enzyme (ACE) inhibitors, Angiotensin II receptor antagonists, calcium channel

blockers, dietary protein restriction and glucose control, and interventions to control hypercholesterolemia and hyperlipidemia.

Date of search: 16 December 2003.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Recommendations of Others. Recommendations regarding antihypertensive therapy in diabetic nephropathy from the following groups were discussed: Kidney Disease Outcomes Quality Initiative, Canadian Diabetes Association, United Kingdom Renal Association, The sixth report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure, The seventh report of the joint National Committee on the prevention, detection, evaluation, and treatment of high blood pressure, National Heart Lung & Blood Institute Working Party on Hypertension in Diabetes, World Health Organization / International Society of Hypertension, American Diabetes Association, National Hemophilia Foundation, Australian Diabetes Society, Australian Diabetes Association, Scottish Intercollegiate Guideline Network, American Association of Clinical Endocrinologists, and Australasian Paediatric Endocrine Group.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the levels of evidence (I–IV) can be found at the end of the "Major Recommendations" field.

Guidelines

- a. Adequate control of blood pressure (BP) slows progression in diabetic nephropathy. (*Level I evidence*)
- b. Goal blood pressures in diabetic nephropathy should be < 130/85 mmHg in patients over 50 years of age and < 120/70–75 mmHg for those under 50 years.* (*Level I evidence*) Multiple antihypertensives are usually required to achieve target BP.
- c. Protection against both nephropathy progression and cardiovascular events is provided by good BP.

**The recommendation of target BP to vary with age is based on clinical caution in a population at risk of cerebrovascular disease, rather than any evidence for a J-curve effect in the diabetic population.*

Suggestions for Clinical Care

(Suggestions are based on Level III and IV sources)

- Effective BP control is the single most important factor in limiting rate of progression of diabetic nephropathy.
- Most hypertensive diabetic patients will require treatment with two or more antihypertensives to achieve optimal BP control.
- The recommendation of target BP to vary with age is based on clinical caution in a population at risk of cerebrovascular disease, rather than any evidence for a J-curve effect in the diabetic population.
- Elderly patients with Type 2 diabetes commonly have high systolic blood pressure (SBP) and pulse pressure, but normal diastolic pressure. Therapy in this group needs to target SBP.

Definitions:

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Appropriate management of blood pressure (BP) in patients with diabetic nephropathy
- Protection against progression of diabetic nephropathy and cardiovascular events

POTENTIAL HARMS

Complications associated with lowering blood pressure too far in elderly patients

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2005 Sep

GUIDELINE DEVELOPER(S)

Caring for Australasians with Renal Impairment - Disease Specific Society

SOURCE(S) OF FUNDING

Industry-sponsored funding administered through Kidney Health Australia

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

David Harris, Convenor (Westmead, New South Wales); Merlin Thomas (Pahran, Victoria); David Johnson (Woolloongabba, Queensland); Kathy Nicholls (Parkville, Victoria); Adrian Gillin (Camperdown, New South Wales)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All guideline writers are required to fill out a declaration of conflict of interest.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [Caring for Australasians with Renal Impairment \(CARI\) Web site](#).

Print copies: Available from Caring for Australasians with Renal Impairment, Locked Bag 4001, Centre for Kidney Research, Westmead NSW, Australia 2145

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- The CARI guidelines. A guide for writers. Caring for Australasians with Renal Impairment. 2008 Jul. 6 p.

Electronic copies: Available from the [Caring for Australasians with Renal Impairment \(CARI\) Web site](#).

PATIENT RESOURCES

None available

NGC STATUS

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